

STUDY OF REPRODUCTIVE BIOLOGY OF *LABEO BATA* FROM RIVER GHAGHRA

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ABSTRACT : The population of *L. bata* showed a male – female sex ratio of 1: 1.26 in the specimens from fresh water river Ghaghra. Males matured at length of 185 mm and females at 195 mm. 50% of both sexes were found matured at 200 mm size. Maturity was attained when both sexes were about one year old. Spawning occurs during July and August, the period of maximum precipitation and uniformly high temperature. Each individual contained only one stock of oocytes and spawned only once in a breeding season lasting from July to August. Individual fecundity varied from 10250 to 880000 with an average of 193790. Fecundity was found to be more closely related to ovary weight or body weight than total length of the fish.

Key words : *Labeo bata* , spawning, fecundity.

INTRODUCTION

The knowledge of reproductive biology of a fish is extremely important because reproduction is the link in the life cycle of a fish, which in connection with other links ensures of continuation of species. The specific peculiarity of reproduction in every species is an adaptation to the particular conditions of reproduction and development of its larvae, which provide the replenishment so essential for preservation of species and its abundance. The knowledge of the reproductive biology of a fish is essential to formulate management measures and for exploitation of its fisheries in any body of water. However, the success or failure of a species in the aquatic ecosystem largely depends on its spawning potential. The seasonal changes occurring in the gonadal development, maturity, fecundity, breeding season, etc. of freshwater fishes such as *Catla catla* (Jhingran, 1966), *Heteropneustes fossilis* (Bhatt, 1968), Siddiqui *et al* (1976) undertook the observation on the maturity, fecundity, etc. of *Labeo gonius*. The present study deals with the sex ratio, spawning season, seasonal cyclic changes in gonadal maturation, gonado-somatic index, size and frequency distribution of mature oocyte and fecundity of *Labeo bata* from River Ghaghra.

MATERIALS AND METHODS

Fish samples of River Ghaghra were collected from Dhakherwa fish market (District: Kheri – Lakhimpur) for a period of two years from January 2017 to December 2017. Fishes were measured to the nearest mm and

weighed on a pan balance sensitive up to 0.5 gm. The age of each fish was determined by means of scale study. Gonads were taken out and their stages of maturity were assessed. Sex ratio was determined from samples examined in each month. The percentage of each sex and probability values of the hypothesis that both sexes are equally distributed was calculated by Chi-square (χ^2) test. Size and age of the fish at first maturity stage of the fish were also determined. Seasonal changes in gonadal condition and gonado-somatic index (gonad weight expressed as percentage of body weight of the fish) were determined on the basis of monthly examination of gonad weight and body weight of the fish. The spawning cycle as well as breeding time of the species was determined. For studying the size progression of ova during different months, the present ovaries were teased out and the oocytes were carefully removed. A random sample of about 200 ova was taken and their diameters were measured with the help of an ocular micrometer. A mean of their measure was considered as the diameter of the fish oocyte. The fecundity was estimated by gravimetric method. Number of ova per g body weight, per g weight of gonad and per mm length were also calculated. The size and number of ova per g weight of anterior, middle and posterior regions of two lobes were also determined. Simple regression analysis of the relationship of the fecundity to total length, body weight and ovary weight and tests of significance were carried out by the method, as described by Snedecor and Cochran (1989).